DOCUMENT RESUME

ED 102 444 CG 009 477

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TITLE	Effects of Variations in the Administration of the Self-Directed Search on Scoring Accuracy and Satisfaction with Results. Research Report No. 3-74.
SPONS AGENCY	Maryland Univ., College Park. Counseling Center.
REPORT NO	RR-3-74
PUB DATE	74
NOTE	12p.
EDRS PRICE	MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS	College Students; Examiners; Research Projects; *Scoring; *Self Evaluation; Success Factors; *Testing Problems; *Test Results; *Vocational Interests
IDENTIFIERS	*Hollands Self Directed Search; SDS

ABSTRACT

This study examined the effects of three variables on self-scoring accuracy and satisfaction with results on Holland's Self Directed Search. The sample consisted of 489 freshmen who took the SDS during orientation. The three independent variables were the test administrator's attitude toward the SDS (positive or neutral), the size of the group taking the SDS (25 or 100), and the use of monitors during the administration (monitoring or no monitoring). Over one-fourth of the subjects made scoring errors resulting in incorrect high point codes, and over one-half made errors affecting their final three-letter summary code. Less than half the subjects felt their results were useful or reasonable. Of the three independent variables, only monitoring significantly reduced self-scoring errors, and none affected satisfaction, although trends toward interactions of the two other variables with monitoring emerged. Questions were raised about whether, even with monitoring, error rates are too high and satisfaction too low to warrant use of the SDS, in its present form, as a self-counseling device. (Author)

ED102444

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EFFECTS OF VARIATIONS IN THE ADMINISTRATION OF THE SELF-DIRECTED SEARCH ON SCORING ACCURACY AND SATISFACTION WITH RESULTS

Research Report # 3-74

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CG 009 477

There has been a long-standing need in vocational counseling for a short, self-administering, and self-interpreting instrument that efficiently summarizes an individual's characteristics and links them to relevant occupations. Ideally, such an instrument would eliminate the time lag involved in machine scoring and obviate much of the need for face-to-face counseling. An instrument of this sort recently has been developed by Holland (1971), and preliminary research suggests that simply completing it (including self-interpretation) has a beneficial effect on students' vocational development (Zener & Schnuelle, 1972).

The Self-Directed Search (SDS) is a self-administered, self-scored, and self-interpreted instrument designed to..."provide a vocational counseling experience for people who do not have access to professional counselors, or who cannot afford their services, and to multiply the number of people a counselor can serve (Holland, 1972, p. 3)." It is based on Holland's (1966) theory of vocational choice. The theory asserts that vocational choice is a reflection of personality, and that there are six vocationally-relevant personality types: realistic, investigative, social, artistic, conventional, enterprising. The SDS enables people to assess their resemblance to each of the six theoretical personality types and to determine the resulting occupations for which they would be most suited (Holland, Viernstein, Kuo, Karweit & Blum, 1970).

Despite its potential usefulness, an investigation by Gelso, Collins, Williams and Sedlacek (1973) revealed that a high percentage of incoming college freshmen make serious scoring errors on the SDS (as many as 50%). In addition, less than half the subjects felt their SDS results were reasonable.

Since the notion of a self-administering guidance system does have much merit (Holland, 1971, 1972), and because at least two studies support the value of the SDS in vocational guidance (Christensen & Sedlacek, 1974; Zener & Schnuelle, 1972), the authors considered it important to search for ways of reducing scoring errors (which attenuate both reliability and validity) and of enhancing students' attitudes toward the instrument. Rather than reorganizing the instrument itself, it was viewed as more parsimonious to begin such a search by studying variables in the testing situation. If such variables were found to affect scoring accuracy and satisfaction with the SDS, they could then be manipulated accordingly in subsequent test administrations. Research conducted on the SDS indirectly suggests that two factors may affect scoring accuracy: the size of the group taking the instrument and whether or not the administration is carefully monitored (Baldwin, 1971; Gelso, et al., 1973; Holland, 1972; O'Connell & Sedlacek, 1971; Zener & Schnuelle, 1972). Additionally, earlier research suggests that a test administrator's attitude toward the instrument being administered may affect subjects' performance on and feelings about the test (Masling, 1960; Weiner, 1957). Thus, the present experiment sought to determine the effect of three variables (administrator attitude toward the SDS, group size, monitoring of the test administration) on both the accuracy of students' self-scoring and students' satisfaction with their SDS results.

Method

Sample and Procedure

As part of the 1972 summer orientation program at the University of Maryland, 489 incoming freshmen completed the SDS. When students arrived for testing they were randomly assigned to one of eight subgroups in which they completed the instrument. Each subgroup was given the SDS by a test administrator, whose role it was to introduce briefly the instrument. Test-taking lasted a maximum of 60 minutes.

The eight subgroups to which students were assigned represented combinations of the three independent variables: administrator attitude toward the SDS (positive or neutral), group size (25 or 100), and whether or not the test administration was monitored. In its final form the experimental design was a 2 x 2 x 2 crossed and balanced factorial design.

Administrator attitude (positive or neutral) was reflected in the administrator's introduction to the SDS as follows:

Positive attitude: In a few minutes I will be passing out a test which has been found to be extremely useful in vocational guidance. It is called the Self-Directed Search. As the name implies, you do your own scoring, profiling and interpreting of your results. You will obtain the results immediately and relate them to 414 possible occupations. For some of you, vocational and academic planning are closely associated. If you don't know what to study or what you want to do for a living, it can be a problem. This test may be of great help to those of you who find yourselves in this situation. If you are reasonably certain about your vocational goals, the results of this test will help in reaffirming your ideas.

Neutral attitude: In a few minutes I will be passing out a test called the Self-Directed Search. It is used in vocational guidance. As the name implies, you do your own scoring, profiling and interpreting of your results. This test may be helpful to you in vocational and academic planning.

The administrations were conducted over a two day period and were managed by two experienced test administrators (graduate students in counseling). Each administrator engaged in an equal number of administrations under each experimental condition.

Whether or not test administrations were monitored was the second independent variable. The four groups with monitoring had one monitor per 25 students, following Zener and Schnuelle's (1972) procedure. Monitors were undergraduates who were experienced in test monitoring and highly familiar with the SDS. They were instructed to offer assistance to students who seemed perplexed when taking the test and to answer any questions which might arise. In the four non-monitored groups, monitors left the room after distributing the test booklets and returned in 60 minutes.

The third independent variable was group size. It was fixed at two levels, with one-half the groups containing 25 students and the remaining groups consisting of 100 students. It was expected that group size would interact with the presence or absence of monitors. Holland (1973) has noted that the SDS is effectively taken without monitoring in groups of 20 or 30, but that monitors may be needed with large groups.

The SDS: Self-Administration and Scoring

The SDS consists of two booklets, an Assessment Booklet and an Occupations Finder. The subject first completes the Assessment Booklet, which yields a three-letter summary code indicating the three personality types (from Holland's six types) to which he/she is most similar. The subject then consults the Occupations Finder for occupations most compatible with the code.

Completion of the Assessment Booklet entails several steps. In summary, subjects are required to provide self-ratings of interests and competencies in numbers of activities, occupations, and general interest areas subsumed under Holland's personality typology. In the process of completing the Booklet, subjects are required to sum their scores at several points, transfer these sums to graphs and tables, and multiply their sums such that the end result is the aforementioned summary code composed of the three personality types (in order of prominence) the subject most closely resembles.

Dependent Variables

The dependent variables were (a) the accuracy of subjects' self-administration/scoring, and (b) subjects' satisfaction with the SDS. While there are a number of types of errors subjects may commit in taking the SDS (see Gelso, et al., 1973), only those which altered the three letter summary code (letter incorrectly omitted, letters in wrong order) or produced an incorrect high point code were considered in this study, since these are the most serious types of errors from a counseling standpoint. Error rates were analyzed by three experienced undergraduate research assistants. Two assistants each re-scored one-half the Assessment Booklets to detect errors that affected the summary code or high point code. Then, to assure that errors were not committed in the re-scoring itself, a third assistant re-scored all assessment booklets again. Thus, all booklets were re-scored twice. When the two re-scorings and noting of errors did not coincide (about 20% of the cases), the Testing Office's psychometrist, a person highly familiar with the SDS, resolved the difference by again re-scoring the booklet.

Subjects' satisfaction with the SDS was measured by two items that have been used in several SDS studies (Collins & Sedlacek, 1972; Gelso, et al., 1973; Kimball, Sedlacek & Brooks, 1973). After taking the SDS, subjects responded to the statements: (a) "My summary code occupations seem reasonable for me;" (b) "I think the results will be useful to me in future academic planning." Each item was responded to on a 5-point Likert scale as follows: 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree.

Results

To balance the experimental design, it was planned to select randomly 25 booklets from each of the four groups with n's of 100. Only 23 students in two of the four groups with pre-planned n's of 25 attended the testing sessions. Thus, to keep balancing intact, 23 Assessment Booklets were analyzed for each of the eight groups, resulting in an overall n of 184.

Error Rates

Overall, 108 of the 184 (59%) students made errors that altered their three-letter summary code, and 48 (26%) made mistakes which produced erroneous high point codes. Chi square analyses were performed on the frequency of cases in which errors were made that affected high point codes and summary codes according to each experimental variable (group size, administrator attitude, monitoring). Frequency data are presented on Table 1. It can be seen that very similar error rates occurred when the group size was 25 and 100, and when the test administrator's attitude was positive and neutral. The effects of these two variables did not approach the .05 level of significance. The monitoring variable, however, did affect significantly errors in high point codes. Thirty-one of the 92 students (34%) in the four non-monitored groups had erroneous high point codes, while only 17 of the 92 students (18%) in the four monitored groups had inaccurate high point codes ($\chi^2 = 5.53$, $p < .02$). While a similar pattern emerged for the effects of the monitoring variable on summary code errors, it did not approach statistical significance ($\chi^2 = 1.44$, $p = .23$).

Insert Table 1 About Here

To determine the interaction effects of the three independent variables on the two types of errors, 2 x 2 x 2 analyses of variance were performed, viewing the dependent variables as two-point continua, i.e., error = 1, no error = 2. No significant interactions emerged for high point or summary code errors, although a trend ($F = 2.91$, $p = .09$) existed toward a monitoring by administrator attitude interaction. Students in the non-monitored groups that were presented with positive administrator attitudes toward the SDS exhibited a tendency toward higher error rates than those in the other three monitoring X administrator attitude treatment combinations.

Satisfaction with the SDS

In response to the statement, "My summary code occupations seem reasonable to me," the following frequencies emerged for all 184 students: Strongly agree = 19 (10%), agree = 64 (35%), neutral = 54 (29%), disagree = 25 (14%), strongly disagree = 22 (12%). To determine the effects of group size, administrator attitude, and monitoring on students' responses to this item, a 2 x 2 x 2 analysis of variance was performed. None of the main or interaction effects attained statistical significance, although there was a nonsignificant tendency ($F = 2.49$, $p = .11$) for students who took the SDS under monitored conditions to respond more favorably than those whose test-taking was non-monitored ($\bar{X}$'s = 2.69 vs. 2.96 in the monitored and non-monitored conditions respectively; lower scores indicate great agreement).

The statement, "I think the results will be useful to me in my future academic planning," elicited the following responses: Strongly agree = 11 (6%), agree = 58 (32%), neutral = 70 (38%), disagree = 23 (13%), strongly disagree = 22 (12%). The three-way analysis of variance on this item indicated that no main or interaction effects attained statistical significance. Again, however, there was a trend ($F = 2.97$, $p = .09$) in the direction of students in the monitored condition responding more positively than those in the non-monitored condition ($\bar{X}$'s = 2.79 vs. 3.07 in the monitored vs. non-monitored condition respectively, with lower scores indicating greater agreement). Also, a trend ($F = 2.98$, $p = .09$) emerged toward a monitoring by group size interaction, with students in the smaller groups ($n = 25$) and monitored condition responding more positively than those in the other three group size-monitoring treatment combinations.

Discussion

In general, the data suggest that a large percentage of students make serious errors when completing the SDS. Over one-fourth in the present study made errors which produced incorrect high point codes and more than half made mistakes that resulted in inaccurate summary codes. In addition, subjects did not appear to be particularly satisfied with the instrument. These findings are highly consistent with those of Gelso, et al., (1973), the study which formed the basis for the present experiment.

The results do indicate that careful monitoring of SDS test taking is helpful in reducing scoring errors. Significantly fewer protocals had erroneous high point codes when test taking was monitored than when it was not (18% vs. 34% respectively). Also, there was a consistent trend toward monitoring having a desirable effect on the remaining dependent variables. These results support Holland's (1972) belief that monitors are needed when the SDS is given in larger groups. The findings also indicate, however, that monitors are helpful in smaller groups. Thus, it may be important to use trained monitors in groups of any size. This sort of finding raises serious questions about whether the SDS, as it currently stands, can be truly "self directed", or at least as self directed as its constructor has purported it to be.

Neither of the two remaining independent variables, group size and administrator attitude toward the SDS, were found to affect either scoring accuracy or satisfaction, although trends toward their interacting with the monitoring variable were uncovered. A word of caution is in order regarding the interpretation of these negative results. With respect to administrator attitude, it must be remembered that the two levels chosen for this experiment were "positive" and "neutral." Thus, the results in no way imply that a negative attitude by the administrator would not dampen students' attitudes toward the instrument. Similarly, the results do not imply that scoring accuracy and/or satisfaction would not be attenuated by administration to groups considerably larger than 100. Since a fixed effects model was employed in this experiment, caution must be exercised in generalizing much beyond the levels that were chosen for each variable.

As implied, subjects did not appear to experience a high degree of satisfaction with their SDS results. Only 38% agreed or strongly agreed that their results would be useful in future academic planning, and only 45% similarly

agreed that the occupations suggested by their summary code seemed reasonable. It will be recalled that students in the present study took the SDS during freshman orientation. Might this indicate that we are dealing with unmotivated subjects who, due to low motivation, have negative attitudes toward the test-taking experience and make many errors when completing the SDS? The results of Gelso, et al., (1973) do not support such a speculation. They found that most students in a highly similar situation claimed to be very interested in learning more about what academic majors and occupations they might like. More to the point, students' degree of interest was not found to be a factor in their evaluation of the reasonableness of their summary code occupations, or in scoring accuracy for that matter. Taken together, the evidence suggests that the SDS may be less attractive to university students than the author of the instrument has suspected (see Holland, 1971, p. 175).

At a minimum, the data imply that when the SDS is taken by incoming freshmen during orientation, the error rates are appreciably higher, and students' satisfaction with their results is much lower, than would seem desirable. Careful monitoring does reduce scoring errors. But does such monitoring reduce errors enough to warrant use of the instrument as a "self-counseling" tool? While admitting that an answer to this question must be relative and somewhat arbitrary, the authors are inclined to answer in the negative. What appears to be called for now is a re-organization of the Assessment Booklet and a simplification of self-scoring procedures. Such revisions need to be assessed carefully, in terms of scoring accuracy <u>at a minimum</u>, before being utilized on a large scale with client populations. The University of Maryland Counseling Center is now exploring the use of a streamlined version of the SDS in combination with at least an initial interview with a client in which a judgment is made on whether the SDS is a suitable treatment. Careful checks are being made on both scoring accuracy and clients' satisfaction with the SDS experience.

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Table 1

Error Rates in High Point Codes and Three-letter Summary Codes for Each Experimental Variable

		High point code		Summary code	
Variable	Level	error	no error	error	no error
Group Size	100 [1]	22	70	54	38
	25	26	66	54	38
Administrator Attitude	Positive	20	72	52	40
	Neutral	28	64	56	36
Monitoring	Monitors	17	75[2]	50	42
	No Monitors	31	61	58	34

[1] Analysis was performed using n's of 23 for each of the eight subgroups for the group size variable as well as the Administrator Attitude and Monitoring Variables.

[2] $\chi^2 = 5.53$, $p < .02$; all other χ^2's ns ($p > .05$).